

CURRENT CLAIM LIST

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1. (Currently Amended) A method for calculating an optimum viewing display size for a visual object comprising the steps of:

determining an encoding resolution for an input visual object prior to encoding;
compressing a visual object at the encoding resolution with a visual object encoder wherein the visual object comprises at least one video frame;
for a predetermined number of frames of the encoded visual object, calculating one or more signal-to-noise ratios;
calculating a coding difficulty value ~~as a function of the one or more calculated signal-to-noise ratios~~; and
determining the optimum viewing display size, at a decoder, for the encoded visual object based on at least one of the coding difficulty value and an encoded visual object transmission rate thereby maximizing perceived quality in a displayed visual object.

Claim 2. (Original) The method of claim 1, wherein the visual object comprises one of a graphical image and video.

Claim 3. (Original) The method of claim 2, wherein the graphical image comprises one of a banner advertisement, a photograph, and a graphical object.

Claim 4. (Original) The method of claim 3, wherein the video comprises one of a stored video and a live television signal.

Claim 5. (Original) The method of claim 1, further comprising the step of transmitting the visual object over a computer network.

Claim 6. (Original) The method of claim 1, further comprising the step of transmitting the visual object over a wireless medium.

Claim 7. (Original) The method of claim 6, wherein the wireless medium comprises one of radio frequency waves, infrared light waves, and a form of electromagnetic coupling.

Claim 8. (Original) The method of claim 1, further comprising the step of receiving a form of payment as a requirement to encode the visual object.

Claim 9. (Original) The method of claim 1, further comprising the step of calculating signal-to-noise ratios for one of sets of frames of the visual object, a sampling of frames of the visual object, and each frame of the visual object.

Claim 10. (Original) The method of claim 1, wherein the visual object transmission rate comprises one or more values measured in units of information per unit of time.

Claim 11. (Original) The method of claim 10, wherein the visual object transmission rate comprises a speed at which binary digits are transmitted.

Claim 12. (Original) The method of claim 1, wherein the step of calculating a coding difficulty value as a function of the calculated signal-to-noise ratios further comprises calculating the coding difficulty value as a function of a harmonic mean of the signal to-noise ratio.

Claim 13. (Original) The method of claim 1, wherein the step of determining the optimum display size for the visual object comprises the step of associating the coding difficulty value and a visual object transmission rate of the visual object with one or more empirically determined functions.

Claim 14. (Original) The method of claim 13, further comprising the step of associating one of a plurality of empirically determined stair step functions with values indicating a relative size of visual object on display device.

Claim 15. (Original) The method of claim 1, further comprising the step of automatically displaying the visual object with the optimum display size.

Claim 16. (Original) The method of claim 1, further comprising the step of displaying the visual object with the optimum display size in response to a user command.

Claim 17. (Currently Amended) A method for calculating an optimum viewing display size for a visual object comprising the steps of:

receiving an encoded visual object, previously encoded at an encoding resolution,
wherein the visual object comprises at least one video frame;

for a predetermined number of frames of the encoded visual object, calculating a step size;

deriving a coding difficulty value as a function of step size; and

determining the optimum viewing display size, at a decoder, for the encoded visual object based on at least one of the coding difficulty value and an encoded visual object transmission rate thereby maximizing perceived quality in a displayed visual object.

Claim 18. (Original) The method of claim 17, wherein the visual object comprises one of a graphical image and video.

Claim 19. (Original) The method of claim 18, wherein the graphical image comprises one of a banner advertisement, a photograph, and a graphical object.

Claim 20. (Original) The method of claim 19, wherein the video comprises one of a video downloaded to a file from the internet, a live television signal, interact streaming, and video retrievable on a portable storage medium.

Claim 21. (Original) The method of claim 17, further comprising the step of receiving the visual object from a computer network.

Claim 22. (Original) The method of claim 17, further comprising the step of receiving the visual object from a wireless medium.

Claim 23. (Original) The method of claim 22, wherein the wireless medium comprises one of radio frequency waves, infrared light waves, and a form of electromagnetic coupling.

Claim 24. (Original) The method of claim 17, further comprising the step of receiving a form of payment as a requirement to decode the visual object.

Claim 25. (Original) The method of claim 17, further comprising the step of calculating step sizes for one of: sets of frames of the visual object, a sampling of frames of the visual object, and each frame of the visual object.

Claim 26. (Original) The method of claim 25, wherein the step of calculating the step size further comprises the step of calculating the step size based upon a first transformation coefficient.

Claim 27. (Original) The method of claim 26, wherein the step of calculating the step size further comprises the step of calculating the step size based upon a second transformation coefficient.

Claim 28. (Original) The method of claim 17, further comprising the step of calculating a mean value of the calculated step sizes.

Claim 29. (Original) The method of claim 17, wherein the step of determining the optimum display size for the encoded visual object comprises the step of associating the coding difficulty

value and the visual object transmission rate of the visual object with one of an empirically determined function.

Claim 30. (Original) The method of claim 29, further comprising the step of associating one of a plurality of stair step functions and a plurality of diagonal zones with values indicating a relative size of visual object on a display device.

Claim 31. (Original) The method of claim 17, further comprising the step of automatically displaying the visual object with the optimum display size.

Claim 32. (Original) The method of claim 17, further comprising the step of displaying the visual object with the optimum display size in response to a user command.

Claim 33. (Original) The method of claim 17, wherein the step of displaying a message further comprises displaying a message with one of a cathode ray tube, a liquid crystal display, a light emitting diode display and a projector.

Claim 34. (Original) The method of claim 1, wherein the step of displaying a message further comprises displaying a message with one of a cathode ray tube, a liquid crystal display, a light emitting diode display, and a projector.

Claim 35. (Currently Amended) A system for calculating an optimum viewing display size for a visual object comprising:

an encoder for determining an encoding resolution of a visual object prior to compressing the visual object at the encoding resolution wherein the visual object comprises at least one video frame, for calculating ~~a signal-to-noise ratio for a predetermined number of frames of the encoded visual object, for calculating~~ a coding difficulty value ~~as a function of the calculated signal-to-noise ratios;~~

a decoder comprising a display size selector for determining an optimum viewing display size of the encoded visual object based on the coding difficulty value and an encoded visual object transmission rate; and

a display device for displaying a message indicating the optimum viewing display size for the encoded visual object.

Claim 36. (Original) The system of claim 35, further comprising an audio encoder and an audio/video system multiplexer.

Claim 37. (Original) The system of claim 35, wherein the encoder calculates a harmonic mean of a peak to noise ratio for a predetermined number of frames of the visual object.

Claim 38. (Original) The system of claim 35, wherein the display size selector determines the optimum display sized based upon an empirically derived relationship between the coding difficulty value and the visual object transmission rate.

Claim 39. (Original) The system of claim 35, wherein the visual object comprises one of a graphical image and video.

Claim 40. (Currently Amended) A system for calculating an optimum viewing display size for a visual object comprising:

- a decoder for decompressing an encoded visual object wherein the encoded visual object has been previously encoded at an encoding resolution, for calculating a step size for a predetermined number of frames of the encoded visual object, for estimating a coding difficulty value as a function of step size;
- a display size selector for determining, at the decoder, an optimum viewing display size of the encoded visual object based on the estimated coding difficulty value and an encoded visual object transmission rate; and
- a display device for displaying a message indicating the optimum viewing display size for the encoded visual object.

Claim 41. (Original) The system of claim 40, further comprising a visual object render for generating the decompressed visual object.

Claim 42. (Original) The system of claim 40, further comprising an audio decoder and an audio/video system de-multiplexer.

Claim 43. (Original) The system of claim 40, wherein the decoder estimates a harmonic mean of a peak to noise ratio for a predetermined number of frames of the visual object.

Claim 44. (Original) The system of claim 40, wherein the display size selector determines the optimum display sized based upon an empirically derived relationship between the coding difficulty value and the visual object transmission rate.

Claim 45. (Original) The system of claim 40, wherein the visual object comprises one of a graphical image and video.

Claim 46. (Original) The method of claim 17, further comprising the step of displaying a message indicating the optimum display size for the visual object.

Claim 47. (Currently Amended) A method for calculating an optimum viewing display size for a visual object comprising the steps of:

- determining an encoding resolution for a visual object prior to compression;
- compressing the visual object at the encoding resolution with a visual object encoder wherein the visual object comprises at least one video frame;
- determining the optimum viewing display size, at a decoder, for the encoded visual object based on at least one of a coding difficulty value and an encoded visual object transmission rate; and
- displaying a message indicating the optimum viewing display size for the encoded visual object thereby maximizing perceived quality in a displayed visual object.

Claim 48. (Original) The method of claim 47, wherein the step of determining an optimum display size further comprises the step of evaluating one of a quality of the display device and a size of the display device.

Claim 49. (Original) The method of claim 47, further comprising the step of automatically displaying the visual object with the optimum display size.

Claim 50. (Original) The method of claim 47, further comprising the step of displaying the visual object with the optimum display size in response to a user command.

Claim 51. (Original) The method of claim 1, further comprising the step of displaying a message indicating the optimum display size for the encoded visual object.